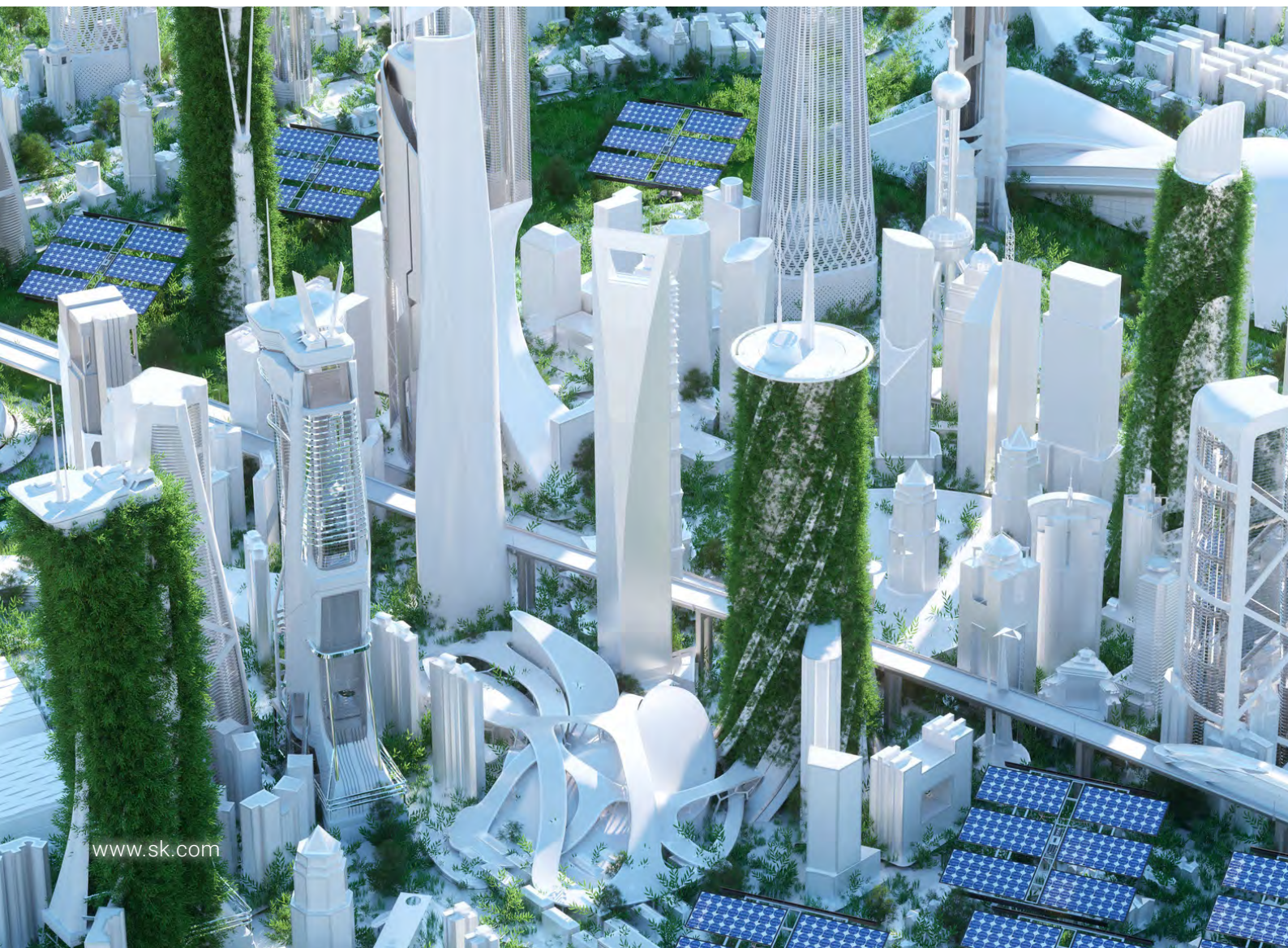




SK's Recycling Commitment: Advancing a Circular Economy

December 2021





SK is a global leader in innovative technologies across a variety of industries aimed at fulfilling sustainability and green development objectives for decades to come. As the world faces growing crises like increasing plastic waste, fresh water scarcity, and critical supply chain disruptions—all of which have been exacerbated by the COVID-19 pandemic—SK is actively researching and investing in next-generation recycling solutions to lead the global transition to a circular economy.

SK's commitment to advancing a circular economy closely aligns with the priorities of President Biden, Congress, industry leaders, and the American public to reduce plastic waste, strengthen and secure U.S. supply chains, and ensure a stable supply of fresh water. We look forward to continued engagement with policymakers, industry partners, and community leaders in support of these efforts.

SK is a conglomerate headquartered in Seoul, South Korea, with over 100 independent operating companies in the semiconductor, telecommunications, energy, advanced materials, electric vehicle (EV) battery, and life sciences sectors. SK, which is currently ranked 129 on the Fortune Global 500 list, proudly employs more than 3,000 Americans and has operations and investments across 21 States and the District of Columbia.

SK has invested \$11 billion in the United States as of November 2021, and we have committed to invest \$30 billion in total in the United States and create over 12,000 new American jobs, with a significant focus on clean energy, EV battery technologies, eco-friendly materials, semiconductors, and life sciences. SK looks forward to serving as a trusted industry leader and partner as it supports the U.S. economy, American workers, and critical recycling solutions across the country and globally.

The COVID-19 pandemic has exacerbated growing issues related to plastic waste, water security, and supply chain disruptions. Demand for single use plastics, consumer products, food, and water has increased dramatically, contributing to more prevalent waste, landfill overcapacity, and scarcer resources.

Importantly, companies are increasingly focused on addressing these challenges. As part of its commitment to a “double bottom line” philosophy aimed at generating both economic value and social value, SK is reconfiguring its growth model toward greater resilience and sustainability. We will continue to engage with our stakeholders, partners, suppliers, and customers to accelerate the drive toward “net-zero” and a circular economy that benefits people and the environment.



Shared Priorities

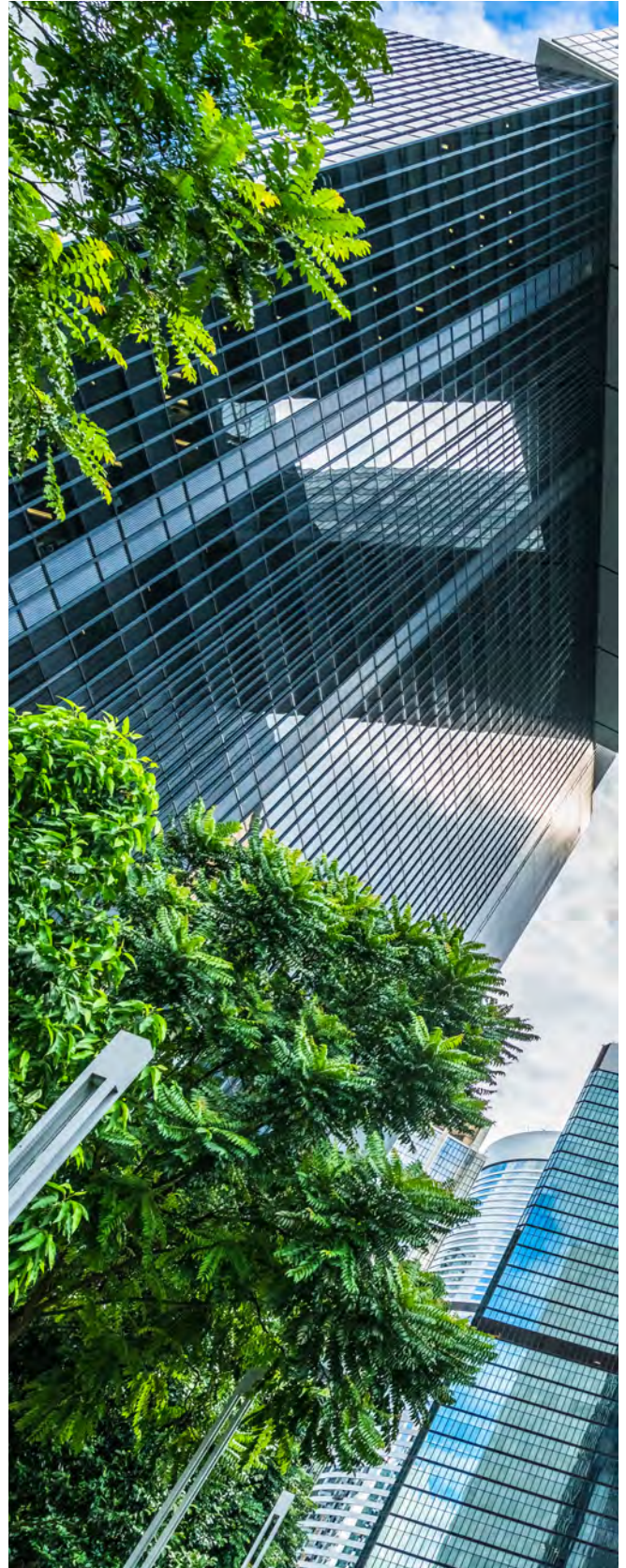
SK strongly supports Congress' and the Biden Administration's focus on combatting climate change, reducing plastic waste and water usage, and securing stable critical materials for the clean energy technologies of the future. Addressing these issues will require robust cooperation between government and industry, as well as significant commitments to invest in next-generation solutions. Specifically, SK shares the priorities of bipartisan Members of Congress and the Biden Administration to support key recycling programs for EV batteries, plastic waste, and water.

For example, the Infrastructure Investment and Jobs Act (IIJA) and the Build Back Better Act (BBB) include billions of dollars to establish EV battery manufacturing and recycling grant programs and pilot projects, with an emphasis on workforce development and educational partnerships. The programs will also help reduce costs for battery recycling research and development, boost U.S. competitiveness, and help secure the supply chain for EV batteries.

SK also shares U.S. policymakers' desire to strengthen market demand and manufacturing capacity for recovered or recycled products, as well as to develop and implement technologies that reduce the amount of waste disposed in landfills. Progress toward these important goals will continue to require close collaboration between companies and federal, State, and local government, as well as substantial private and public investment across a range of technologies and recycling practices, particularly for plastic waste.

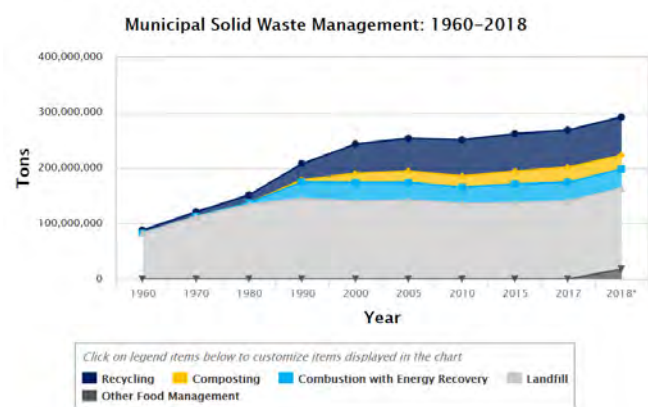
Finally, as a global leader on water reuse and recycling, SK supports Congressional and Biden Administration efforts to address water security, including provisions in the IIJA and the BBB that would include more than one billion dollars for water recycling and reuse projects. Private industry, all levels of U.S. government, educational institutions, and non-profit entities must all continue to focus on water security issues and water recycling technologies to ensure this vital resource is protected.

SK proudly stands ready as a trusted partner as the U.S. government continues to develop and implement an ambitious but necessary agenda to address plastic waste, water scarcity, and clean energy supply chain disruptions.



Plastics Recycling

The world faces a significant trash problem, which has been exacerbated by the COVID-19 pandemic and drastic increases in household waste. According to the U.S. Environmental Protection Agency, the United States is generating nearly 300 million tons of garbage annually, half of which ends up in landfills and less than 25% of which is recycled.



SK is seeking to lead on plastics recycling, including by partnering with leading innovators in the U.S. and around the world. SK's commitment complements the Biden Administration's and Congress' support for innovation in and public adoption of plastic waste recycling.

SK Geo Centric (SKGC) is rapidly transforming into a world-class recycling technology company as it seeks to expand the circular economy for plastics. In fact, SKGC recently became one of the first petrochemical companies in the world to receive the highest certification, AAA, according to the UN Guidelines for Reducing Plastic Waste & Sustainable Ocean and Climate Action Acceleration.

To fulfill its ambition of pioneering a closed recycling loop for plastic, SKGC is researching, developing, and investing in technologies for eco-friendly, high quality plastic production and next-generation chemical recycling. SKGC is the first company in the world to secure capabilities for the three primary chemical recycling technologies:

- **Pyrolysis technology:** Using extreme heat to extract raw materials from plastic waste, such as plastic bags, and recycling the materials into eco-friendly petrochemical products such as lubricants and base oils for EVs. SK Innovation and SK Geo Centric are the first South Korean companies to convert waste plastic pyrolysis oil into high-quality petrochemical products.
- **Depolymerization:** Converting large clumps of low-value plastic molecules, such as those in PET (plastic) bottles and polyester fibers, into smaller base molecules for high quality recycled products.
- **Solvent extraction:** Injecting solvent into contaminated polypropylene (PP), such as automotive interior materials or used food containers, and using high temperature and high pressure to extract unadulterated PP for recycled use.

Through the development and commercialization of these technologies, and as part of its commitment to recycle 2.5 million tons of plastic waste per year and produce 100% eco-friendly materials by 2027, SKGC is working hard to address the plastic waste crisis and to nurture a virtuous cycle of plastic waste resources.



Investments in Recycling Technologies

SKGC plans to reduce 2.5 million tons of plastic waste per year by 2027, up from 500,000 tons per year as of 2020. As part of this commitment to advance the circular economy for plastics, SKGC is investing heavily across several innovative technologies.

- In January 2021, SKGC and California-based Brightmark established a partnership to commercialize pyrolysis recycling technology.
- In June 2021, SKGC invested \$56.5 million to acquire a 10% stake in North American company Loop Industries, the leading innovator for depolymerization recycling technology and chemical decomposition. The two companies plan to build depolymerization recycling facilities across Asia within the decade.
- In July 2021, SKGC invested \$10 million in New York-based Closed Loop Partners' funds to advance circular business models, scalable plastics recycling technologies, and materials recovery infrastructure in North America.
- In August 2021, SKGC and Florida-based PureCycle Technologies agreed to establish a joint venture to build solvent extraction recycling facilities in Asia and significantly improve the recyclability of plastic waste that would otherwise end up in landfills.

SKC, which employs more than 300 skilled American workers in Covington, Georgia, has long been a leading eco-friendly materials company and was the first South Korean company to join the global Alliance to End Plastic Waste. SKC was the first company in the world to commercialize biodegradable films, and SKC's Ecolabel™ is the world's first fully recyclable shrink label for plastic bottles. SKC's innovations with Ecolabel™ and other eco-friendly and recyclable films—such as corn-based polylactic acid (PLA) film—reduce water usage, overall recycling costs, and the amount of shrink labels and plastic bottles that end up in landfills.

SKC is also seeking to commercialize pyrolysis technology to recycle plastic waste into boiler fuel. Finally, as the first company in the world to commercialize hydrogen peroxide to propylene oxide (HPPO) technology, SKC is well-positioned to develop next-generation HPPO solutions and establish commercial production facilities to recycle vinyl waste into automotive interior materials, synthetic resins, and insulation materials for liquefied natural gas vessels.

SKC will take advantage of all available plastic recycling technologies to advance the circular economy and achieve Net Zero Plastic by 2030. To do so, SKC will reduce plastic use throughout its business activities and will encourage its stakeholders and partners to focus on biodegradable materials and eco-friendly practices.

SK Nexilis, which is a subsidiary of SKC, is one of the only chemical companies in the world to achieve Zero Waste to Landfill (ZWTL) Gold Certification, meaning it recycles between 95% and 99% of the scrap metals and plastic waste at its manufacturing plant.



SK Chemicals is one of the world's largest producers of eco-friendly plastics for cosmetic packaging, home appliances, medical packaging, personal protective equipment, and shrink sleeves. SK Chemicals strongly supports the establishment of a circular economy for plastics and functional materials, particularly for the cosmetics and green energy industries. That is why SK Chemicals has committed to producing 100% recyclable materials by 2030.

The company has already taken a crucial step toward this goal. In November 2021, SK Chemicals became the first company in the world to mass-produce chemically recycled copolyester, which is a synthetic plastic widely used in packaging for cosmetics and other goods. SK Chemicals will utilize this world-leading innovation to produce Ecotria™, an eco-friendly copolyester product for cosmetics and food packaging.

Other SK operating companies that do not produce petrochemicals are also developing and implementing important recycling technologies to address the global waste problem.

- **SK Telecom** is producing new telecommunications equipment by recycling the plastics and scrap metals in old antennas, leading to the annual reduction of 300,000 tons of plastic waste, or the equivalent of a million 1.5-liter PET bottles.
- **SK Ecoplant**, in collaboration with Amazon Web Services, is developing artificial intelligence solutions to improve the operational efficiency of waste incinerators and reduce emissions at such facilities.
- **SK Lubricants**, which is producing eco-friendly lubricants for EVs and other low-emission vehicles, is one of the first major lubricants companies in the world to use containers made of recycled plastic.



Electric Vehicle Battery Recycling

As the United States undertakes ambitious goals to electrify the transportation sector, SK will play a critical role in producing EV batteries in the United States, for the United States. In fact, by 2025, SK is currently set to become the top producer of EV batteries in the U.S., with an annual production capacity of more than 1.5 million EV batteries.

Importantly, as more and more EVs reach American consumers, SK believes that battery recycling will be pivotal to ensuring a secure supply of critical minerals for EV batteries and reduce the cradle-to-grave environmental impact of these vehicles. A circular economy for EV batteries will reduce the amount of batteries that end up in landfills, nurture innovation for future battery technologies and energy storage systems, and improve the resiliency, transparency, stability, and sustainability of the EV battery ecosystem.

SK Innovation (SKI) responded to the need for a circular EV battery economy by successfully developing a proprietary technology to recover lithium hydroxide from end-of-life EV batteries. Technologies to extract other minerals such as nickel and cobalt have already been commercialized, but SKI's critical advancement marks the first time that highly pure lithium hydroxide has been recovered from spent batteries. The recycled lithium hydroxide may then be used to produce cathode materials for new EV batteries. After beginning trial production of the technology in 2022, SKI plans to construct recycling facilities near its EV battery plants in Europe, the United States, and around the world.

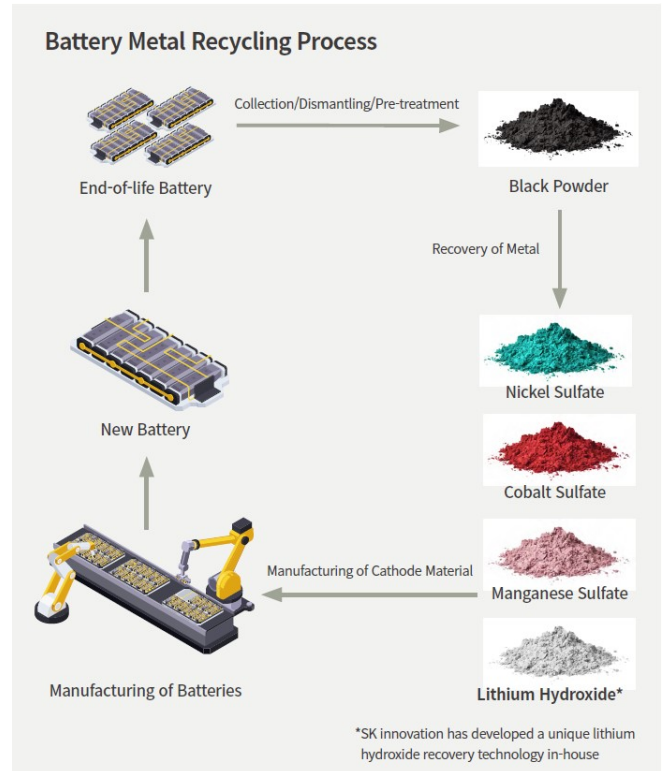
SKI is also proud to have received verification in March 2021 from U.S. Argonne National Laboratory that its lithium hydroxide reclamation process is eco-friendly. Specifically, Argonne National Laboratory conducted a Life Cycle Assessment of the battery recycling technology and found that SKI's lithium hydroxide recovery process emits 74% less greenhouse gases compared to lithium mining and 41% less than lithium lake production. With this technology, SKI and its partners will secure critical raw materials for EV batteries in an eco-friendlier manner and lead the industry in sustainable battery production.

High Value Battery Recycling

Technologies to extract some EV battery minerals have already been commercialized, but the Biden Administration's 100-day supply chain review of advanced batteries found that existing technology only enables the recovery of low value metals and minerals.

SK Innovation's technological advancement is critical because it marks the first time that battery grade lithium hydroxide has been recovered from end-of-life batteries.

SK strongly supports the U.S. government's efforts to invest in next-generation battery recycling and reduce EV battery landfilling. A Department of Energy-led interagency Battery Recovery and Recycling Task Force, as proposed in the Biden Administration's 100-day supply chain review for advanced batteries, could also accelerate the adoption of high value battery recycling technologies.



Additionally, SK Innovation and Ford have established a joint venture called **BlueOvalSK** to produce more than a million EV batteries annually by 2025. As part of the joint venture, the two companies are investing \$11.4 billion to build twin battery plants in Kentucky and at BlueOvalCity near Memphis, Tennessee, and create more than 11,000 jobs combined. BlueOvalCity will pioneer a vertically integrated EV value chain, by including on campus not only battery manufacturing, but also EV battery suppliers, EV assembly, and battery recycling facilities. BlueOvalCity will also set the industry standard for an eco-friendly battery ecosystem by becoming carbon neutral when operational in 2025, and by being ZWTL.

SK On, an SKI company, will supplement these innovations by developing a process to evaluate the performance and safety of spent batteries, with a particular focus on battery packs. SK On is also closely studying the use of recycled batteries in energy storage systems at construction and industrial sites, and as part of a broader Battery as a Service (BaaS) business.



Water Recycling

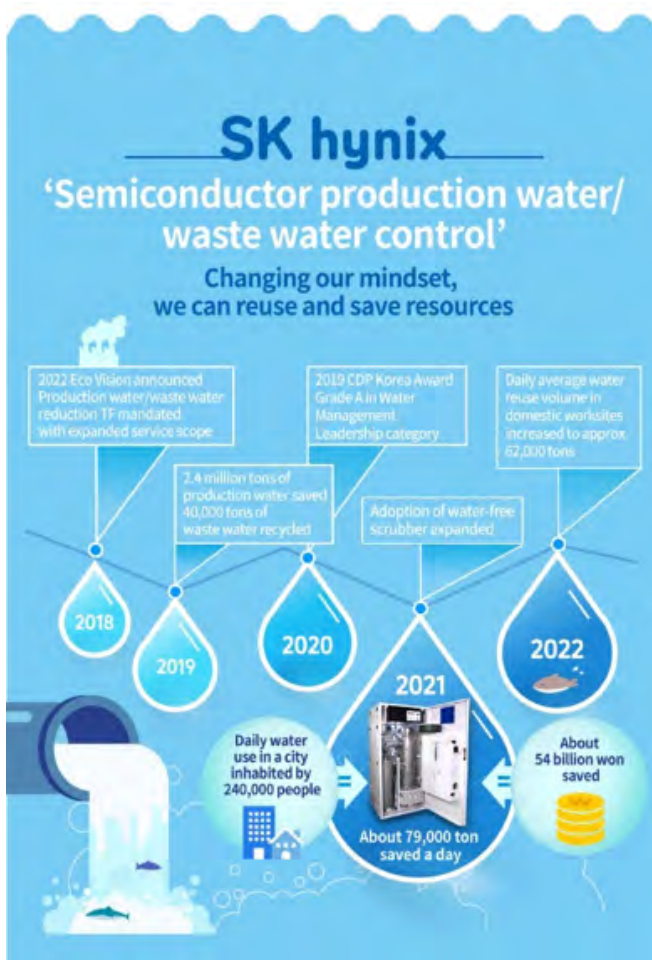
SK is firmly committed to reducing its usage of precious water resources and adopting next-generation water recycling practices and technologies.

For example, **SK Hynix** is a global leader in water resources management throughout the semiconductor manufacturing process. As part of SK Hynix's Green 2030 plan, the company is working to increase water savings by 300% compared to 2019, and is already reusing nearly 80,000 tons of water per day. SK Hynix utilizes wastewater reuse systems, cooling tower reuse facilities, and water-free scrubbers to improve water resource management and produce ultra-pure water for the chipmaking process. In January 2021, SK Hynix issued a \$1 billion green bond to finance eco-friendly projects, including new wastewater treatment plants and water recycling facilities.

Elsewhere in the semiconductor value chain, **SK Siltron** is a leader in wastewater management and water security. Currently, slurry generated during semiconductor wafer production is incinerated or landfilled. SK Siltron, a leading semiconductor wafer manufacturer, has developed innovative and eco-friendly technology to address this pressing issue and recycle more than 95% of slurry generated at its facilities. Based on this technology, SK Siltron aims to obtain ZWTL Gold Certification at all SK Siltron global sites by early 2022.

SK Materials has developed a wireless water contaminant detection system for semiconductor and display material manufacturing processes. Conventional wired detection systems have strict locational constraints, which create additional risks for contaminant detection and rapid response. SK Materials' technology mitigates these risks and reduces water quality-related environmental issues and manufacturing inefficiencies for semiconductors and displays.

SK Ecoplant is traditionally a construction company, but has adopted a transformative focus on eco-friendly project development and establishing a circular economy for waste. As part of this new vision, SK Ecoplant is investing heavily in technologies to reduce landfilling, recycle waste material, and ramp up water treatment. SK Ecoplant has demonstrated its commitment to water resources management by investing around \$1.2 billion to become the largest water treatment and wastewater recycling company in South Korea in 2021.



Conclusion

SK believes that companies must prioritize sustainability and invest heavily in innovative technologies to address the threat of climate change and ensure economic prosperity for all people. Notably, this belief aligns with the priorities of bipartisan Members of Congress and the Biden Administration, as well as the preferences of the American public. According to a recent survey that SK commissioned, nearly three-quarters (72%) of Americans are likely to give buying preference to products that use packaging that can be easily recycled or reused.



As such, SK is committed to and actively pursuing global leadership on recycling practices, technological innovation, and investments, particularly as they relate to plastic waste, water, and EV batteries. SK is proud of this recycling commitment and will continue to act as a trusted partner to advance the circular economy in the United States and around the world.



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